

# PATENT SPECIFICATION



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485,039

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Complete Specification Accepted: May 13, 1938.

## PROVISIONAL SPECIFICATION

### Improvements in Air Filters

I, SYDNEY HOLT, a British Subject, of The White House, Lostock Hall Road, Poynton, Cheshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to air filters of the type employing fabric bags through which the air is passed for the purpose of extracting solid impurities therefrom, and has for its object to provide a filter unit which can be readily incorporated in and removed from an air filtering system or attached to air distributing ducts or the like.

A filtering unit in accordance with this invention comprises a metal casing which is preferably cylindrical with a front plate having holes therethrough to receive the open ends of the fabric filter bags and with a wire mesh or other openwork rear to which springs attached to the closed ends of the filter bags are anchored, the said springs serving to keep the bags under slight tension or in extended condition. The metal around

the holes in the front plate is pressed inwards to form a slightly conical ring and the mouth of each fabric bag is folded upon a wedge shaped ring or ferrule which is pressed into the conically walled aperture in the front plate so that the bag is held firmly in place, the pull of the spring upon the bag preventing its displacement.

The casing may be flanged at its front end to facilitate its being secured in a filtering unit, to an air distributing duct or pipe or otherwise positioned to deal with air to be filtered and distributed.

The complete units can be readily opened out for changing the filter bags and can be readily placed in and removed from position. They may be secured at intervals upon an air distribution main, each unit being of relatively small dimensions, or they may be arranged in parallel in a filtering installation.

Dated this 20th day of March, 1937.

MARKS & CLERK.

## COMPLETE SPECIFICATION

### Improvements in Air Filters

I, SYDNEY HOLT, a British Subject, of The White House, Lostock Hall Road, Poynton, Cheshire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to air filters of the type employing fabric bags or sleeves through which the air is passed for the purpose of extracting solid impurities therefrom, and has for its object to provide a filter unit which can be readily incorporated in and removed from an air filtering system or attached to air distributing ducts or the like.

A filtering unit in accordance with this invention comprises a casing, with a front plate having holes therethrough in which the open ends of the fabric bags are received and held and with a framework wire mesh or other openwork rear to which springs attached to the closed ends of the filter bags are anchored, the said

springs serving to keep the bags under slight tension and in extended condition. The apertures in the front plate are conically walled and the mouth end of each fabric bag or sleeve is folded back upon itself over a ring or ferrule which is a hollow truncated cone and is pressed into the conically walled aperture in the front plate so that the bag or sleeve is held firmly in place, the pull of the spring upon the bag or sleeve preventing its displacement.

One example of a construction of filter unit in accordance with the present invention is shown in the accompanying drawings, in which,

Figure 1 is a longitudinal sectional elevation through the unit,

Figure 2 is a plan view,

Figure 3 is an end elevation, and

Figure 4 is a sectional elevation on an enlarged scale showing the manner of mounting each filter bag in the front plate.

The unit comprises a casing *a* of metal or other suitable material and of any desired cross-sectional configuration. One end of the unit is formed by the front plate *b* which is provided with numerous holes to receive the open ends of fabric filter bags or sleeves *f*. The other end of the unit is formed by the framework *c*, or by wire mesh or other openwork, and to this springs *d* secured to the closed end of each filter bag are anchored.

The metal around each hole in the front plate *b* is pressed inwards, as shown at *b'* in Figure 4, to form a slightly conical ring, and the mouth end of each fabric bag is folded back upon itself over a ring or ferrule *e* which is approximately a hollow truncated cone and is pressed into the conically walled aperture in the front plate so that the bag is held firmly in place, the pull of the spring *d* upon the bag preventing its displacement and holding the bag always in the extended position.

Handles *g* are provided to facilitate the handling of the complete unit.

Rings conical on their inner faces may be inserted in the apertures in the front plate instead of pressing inward the edges thereof, if so desired.

The casing may be flanged at its front end as shown at *h* to facilitate its being secured in a filtering unit, to an air distributing duct or pipe or otherwise positioned to deal with air to be filtered and distributed. For many such purposes the casing is preferably cylindrical.

The complete units can be readily opened out for changing the filter bags and can be readily placed in and removed from position. Also, the filter bags may be cleaned by a vacuum cleaner while in position.

The units may be secured at intervals upon an air distribution main, each unit being of relatively small dimensions, or they may be arranged in parallel in a filtering installation.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An air filtering unit comprising a casing with a front plate having holes therethrough in which the open ends of fabric filter bags or sleeves are received and held, and with a framework, wire mesh or other openwork rear to which springs attached to the closed ends of the filter bags are anchored, the apertures in the front plate being conically walled and the mouth end of each fabric bag or sleeve being folded back upon itself over a ring or ferrule which is a hollow truncated cone and is drawn into the conically walled aperture aforesaid by the action of the spring.

2. An air filtering unit, substantially as hereinbefore described and as illustrated in the accompanying drawings.

Dated this 18th day of January, 1938.

MARKS & CLERK.

*[This Drawing is a reproduction of the Original on a reduced scale.]*

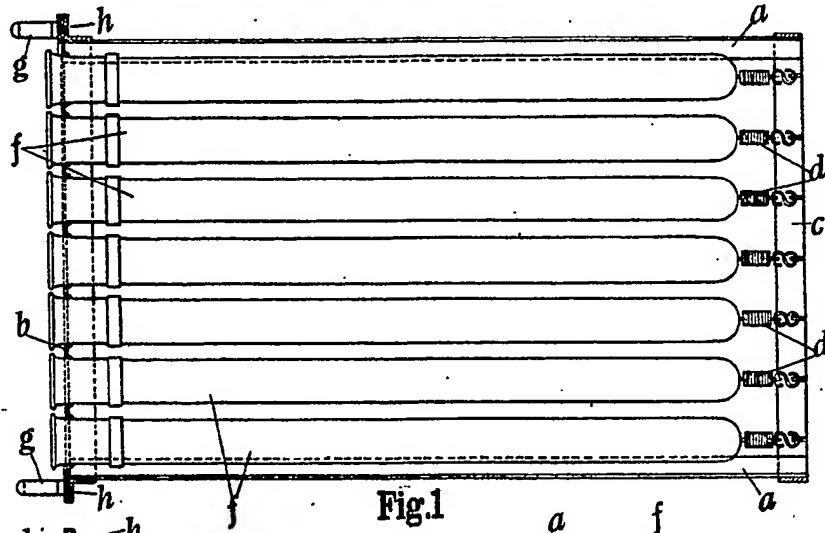


Fig. 1

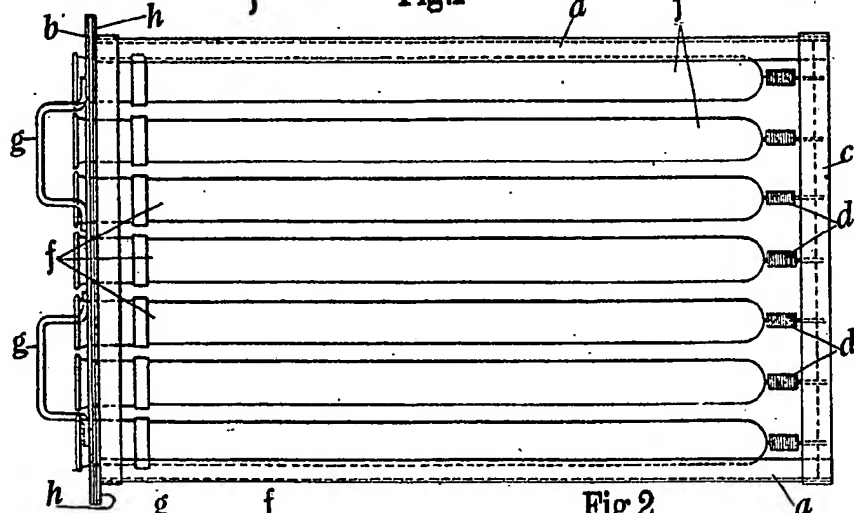


Fig. 2

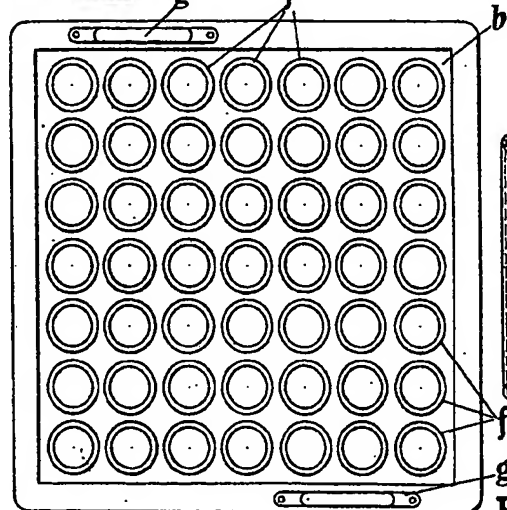


Fig. 3

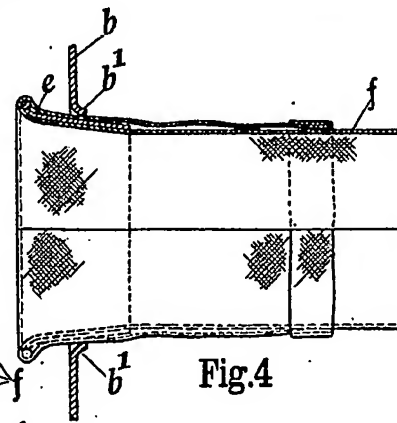


Fig. 4